Commonly Used PBS Commands

Category: Running Jobs with PBS

DRAFT

This article is being reviewed for completeness and technical accuracy.

man pbs provides a list of all PBS commands. The four most commonly used PBS commands, qsub, qstat, qdel and qhold, are briefly described below.

- **qsub**

    ♦ Submit a batch job to the specified queue using a script

    ```
    %qsub -q queue_name job_script
    ```
    Common possibilities for *queue_name* at NAS include *normal, debug, long,* and *low*. When *queue_name* is omitted, the job is routed to the default queue, which is the *normal* queue.

    ♦ Submit an interactive PBS job

    ```
    %qsub -I -q queue_name -lresource_list
    ```

    No *job_script* should be included when submitting an interactive PBS job.
    The *resource_list* typically specifies the number of nodes, cpus, amount of memory and walltime needed for this job. The following example shows a request for Pleides with 2 nodes, 8 cpus per node, and a walltime limit of 3 hours.

    ```
    %qsub -I -lselect=2:ncpus=8,walltime=3:00:00
    ```
    See **man pbs_resources** for more information on what resources can be specified. If -l*resource_list* is omitted, the default resources for the specified queue is used. When *queue_name* is omitted, the job is routed to the default queue, which is the *normal* queue.

- **qstat**

    ♦ Display queue information

    ```
    %qstat -Q queue_name
    %qstat -q queue_name
    ```

```
$qstat -fQ queue_name
```
These commands display in different formats all the queue available on the systems, their constraints and status. The *queue_name* is optional.

♦ Display job status

◊ Display all jobs in any status (running, queued, held)
```
%qstat -a
```

◊ Display all running or suspended jobs
```
%qstat -r
```

◊ Display the execution hosts of the running jobs
```
%qstat -n
```

◊ Display all queued, held or waiting jobs
```
%qstat -i
```

◊ Display jobs that belong to the specified user
```
%qstat -u user_name
```

◊ Display any comment added by the administrator or scheduler
```
%qstat -s
```
This option is typically used to find clues of why a job has not started running.

◊ Display detailed information about a specific job
```
%qstat -f job_id
```

◊ Display status informaton for finished jobs (within the past 7 days)
```
%qstat -xf job_id
%qstat -xu user_id
```

This option is only available in newer version of PBS, which has been installed on Pleiades, but not on Columbia.

```
Some of these flags can be combined when checking the job
status.
```

• **qdel**

Delete a job

```
%qdel job_id
```
• **qhold**

Hold a job

```
%qhold job_id
```

Only the job owner or a system administrator with su or root privilege can place a hold on a job. The hold can be released using the "qrls" command.

For more detailed information on each command, see their corresponding **man pages**.

The *devel* queue on Pleiades is served by a non-default PBS server, pbspl3, and the syntax for qsub, qstat, and qdel jobs in the *devel* queue needs to include pbspl3. Read this article for more information.